REMARKS/ARGUMENTS

The applicant has filed a Request for Continued Examination. Please charge our deposit account number 02-2095 in the amount of $810.00 for the RCE fee. Please also charge any additional fees that may be required, or credit any overpayment, to our deposit account.

In the Office Action, the Examiner stated that Claims 1-3, 5-11, 13-16, 31-33, 35, 36, 38-44, and 47-49 were rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (3,287,189) in view of Pearson (WO 02/055184).

Lack of analogous art

The Examiner must determine what is analogous art for the purpose of analyzing obviousness. In order to rely on a reference, the reference must either be in the field of the Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. (MPEP 2141.01(a))

In the Office Action, the Examiner stated that "Pearson discloses an ANFO explosive comprising ammonium nitrate, diesel oil, and epoxidized soybean oil". Applicant respectfully disagrees. As stated throughout the disclosure of Pearson (see for example page 6, line 5) the explosive described therein is an emulsion explosive and not an ANFO explosive. As is known to those of skill in the art, and as stated by Pearson (page 1, line 25), an emulsion explosive comprises immiscible liquids. In contrast, as stated in the present application (page 1, line 10), an ANFO explosive is a dry blasting agent. As such, applicant submits that Pearson does not disclose an ANFO explosive. In view of this misstatement, the Examiner has not explained a rational for combining the references. In particular, the Applicant submits that the references are not analogous art since they relate to different formulations and a different class of explosive compositions.

Further, Pearson is directed to improved emulsifiers. In contrast, this invention is related to ANFO explosives having improved oil segregation performance. In particular, the Applicant states in the application that it is believed that the chemical coupling agent serves as a chemical bridge between the ammonium nitrate and the organic combustible fuel. The reduced oil segregation is not due to the use of an emulsifier. Therefore, the emulsifier of Pearson is not relevant to the particular problem of this invention. Thus, Applicant submits that the references are not analogous art since Pearson is not pertinent to the particular problem with which this application is concerned. Accordingly, a person skilled in the art would not modify an ANFO explosive, for example the ANFO explosive of Wilson, in accordance with a teaching relating to the emulsion explosive of Pearson.

Lack or reason modify Wilson in view of Pearson

In the Office Action, the Examiner stated that "it would have been obvious to one having ordinary skill in the art...to use the epoxidized soybean oil of Pearson with the explosive of Wilson...". Applicant respectfully disagrees, and submits that even if the references are analogous art, there would be no reason to use the epoxidized soybean oil of Pearson with the composition of Wilson.

First, the Applicant states that Pearson does not disclose an ANFO explosive that comprises epoxidized soybean oil. The explosive of Pearson comprises an emulsion phase, and ammonium nitrate prills. The emulsion phase comprises a discontinuous aqueous phase comprising discrete droplets of an aqueous solution, and a continuous water-immiscible organic phase throughout which the droplets are dispersed (page 2, line 10). An emulsifier is added to the emulsion phase to inhibit the coalescence of the droplets (page 2, line 26). The emulsifier consists of a multifoliate initiator, a conjoining agent, and fatty acid esters (page 6, lines 4-12). In some embodiments, "epoxidized soya bean oil and epoxidized linseed oil each may be suitable or yield suitable

multifoliate initiators ..." (page 10, line 30). That is, the epoxidized oil of Pearson is used as a reactant to form an emulsifier. In particular, the applicant notes that the epoxidized oil of Pearson is not directly combined with ammonium nitrate prills.

Secondly, Pearson does not teach combining epoxidized oils with ammonium nitrate prills. In order to make the explosive composition of Pearson, the emulsion is formed by combining the aqueous phase, the organic phase, and the emulsifier; and then the emulsion is combined with ammonium nitrate prills. The emulsifier is formed using, optionally, epoxidized soya bean oil or epoxidized linseed oil. The epoxidized oils of Pearson are used as a reactant in the formation of an emulsifier. The epoxy rings in the oils are opened, and the oils are reacted with a conjoining agent and fatty acid esters to form an emulsifier. Thus, Pearson teaches that when the ammonium nitrate prills are added, the epoxidized oils have been used to form an emulsifier and are directly combined with the prills, but are used in a modified form – namely as part of an emulsifier.

Thirdly, there is no motivation to combine the teachings. In the Office Action, the Examiner stated that "it would have been obvious to use the epoxidized soybean oil of Pearson with the explosive of Wilson". The basis for combining the references is that Pearson suggests that epoxidized soybean oil is useful with ANFO explosives. However, as argued herein, Pearson discloses the use of such oils with emulsion explosives.

Applicant points out that "a patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art." [KSR v. Teleflex, 550 U.S. ___, 127 S. Ct. 1727 (2007)]. In addition, "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" [In re Kahn, 441 F. 3d 977, 988 (CAFed. 2006)]. As such, Applicant respectfully submits that although ANFO explosives are known, and

epoxidized oil is known, the Examiner has not provided reasoning or rational underpinning to combine using an ingredient of an emulsifier (an epoxidized oil) for an emulsion explosive with an ANFO explosive. As stated hereinabove, in the disclosure of Pearson, the epoxidized oil is used as a reactant in the formation of an emulsifier for an emulsion explosive. The disclosure of Wilson relates to ANFO explosives comprising ammonium nitrate prills combined with fuel oil. Based on the disclosures of Pearson and Wilson, there would be no reason to directly add an epoxidized oil with an organic combustible fuel to form an ANFO explosive as claimed in the present application. In the explosive of Pearson, the epoxy group of the epoxidized oil has already been opened and reacted with other compounds by the time the ammonium nitrate is added to the composition. Thus, Applicant submits that a person of ordinary skill in the art, in view of Pearson and Wilson, or in view of common general knowledge, would have no reason to add an epoxidized oil to an ANFO explosive.

Fourthly, the Applicant submits that even if the teachings of Pearson were applied to the explosive composition of Wilson, the resulting combination would be an explosive comprising an emulsifier. A person skilled in the art would not be motivated to use an epoxidized oil in and of itself as an additive to the organic combustible fuel of Wilson. Instead, a person skilled in the art would be motivated, at most, to use the reacted form of the epoxidized oil – namely the emulsifier. Further, since an emulsifier would be used, an aqueous composition requiring emulsification would also be used. Therefore, the resulting product would be an emulsified explosive composition and not an ANFO explosive composition.

Finally, the chemistry and mechanism used by Wilson to make in-situ water-resistant coatings on porous ammonium nitrate prills (ANFO), which consisted of coating ammonium nitrate prills with "soaps" that form greases with oils added later, is not the same as in the present application where the epoxidized soybean oil chemically reacts (couples) with the prill surface in order to become effective in limiting oil drainage from non-porous, high-density ammonium nitrate prills. Wilson would not have identified

epoxidized soybean oil as effective in his invention (does not form greases when mixed with oils). Conversely, it would not have been obvious to one skilled in the art considering Wilson, with or without Pearce, to identify epoxidized soybean oil in the present invention.

In view of the forgoing arguments, Applicant submits that claims 1-3, 5-11, 13-16, 31-33, 35, 36, 38-44, and 47-49 are not unpatentable over Wilson in view of Pearson. Claim 50 is new, and is dependent on claim 1, and claims 51 and 52 are new and are dependent on claim 31. Thus, Applicant submits that claims 1-3, 5-11, 13-16, 31-33, 35, 36, 38-44, and 47-51 are in condition for allowance.

In addition, the Applicant has inserted new claims 50 – 52. Claims 50 and 51 specify that the epoxy group is in an unopened state when combined with the ammonium nitrate particles and organic combustible fuel. As argued herein, even if the references were combined, a person skilled in the art would not combine epoxidized oil itself to the organic combustible fuel of an ANFO explosive composition but would use the emulsifier (wherein the epoxy ring has been opened). Claim 52 specifies that the epoxy group binds to the ammonium nitrate particles. If the emulsifier of Pearson were added to the ANFO explosive of Wilson, then the epoxy group would have already been subjected to a chemical reaction and not available to bind the ammonium nitrate. Accordingly, the applicant submits that new claims 50 – 52 are patentable over the art of record.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BERESKIN & PARR

By _____
Philip C. Mendes da Costa
Reg. No. 33,106
Tel: 416-957-1695